Volume 5 Report No. 6-A

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.

Project No: F-5-R-5 Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters on the Kenai Peninsula, Cook Inlet-Prince William Sound Areas.

Job No: 6-A

Period Covered: July 1, 1963 to June 30, 1964.

Abstract:

Inventory and cataloging activities were conducted on lakes adjacent to the Swanson River and Swan Lake Road in the Kenai National Moose Range. Thirteen new lakes were surveyed and two lakes were resurveyed. Rainbow trout were the most common game fish.

A total of 319 Arctic grayling was captured from Crescent Lake and transplanted to Upper Paradise Lake, Carter Lake and Vagt Lake in Chugach National Forest.

The Russian River creel census on red salmon was continued. An estimated 7,882 man-days of effort caught an estimated 5,062 red salmon. The catch per hour was 0.19. The sport fishery captured 8.2 per cent of the total red salmon run in the Russian River.

Recommendations:

Based on the information collected thus far, it is recommended that:

The cataloging and inventory program be continued with emphasis on waters adjacent to road systems.

Roadside lakes near populated areas which have no game fish populations be evaluated for possible rehabilitation and stocking with rainbow trout.

The experimental stocking of Arctic grayling be continued in those waters which have spawning areas and no game fish populations.

The Russian River creel census be continued to measure the sport harvest and effort on red salmon.

A limited creel census program be initiated on the saltwater sport fishery in Kachemak Bay.

Objectives:

To determine the current status, potential and public availability of Alaska's sport fishing waters for formulation of future management investigations.

To assess environmental characteristics and formulate plans for application of restoration measures, availability of sport fish egg sources for experimental hatching and rearing, population manipulations, and catch data as acquired by periodic creel census.

To evaluate multiple water use development projects for proper protection of the sport fish resources.

Techniques Used:

Standard lake survey methods were used to collect physical and chemical data. Variable mesh experimental gill nets were employed to determine the fish species present, relative abundance and to obtain age and growth information.

The creel census technique employed on the Russian River is a modification of the method described by Neuhold and Lu (1957). The changes in the method are the same as those outlined by Lawler (1962).

Findings:

Lakes Surveyed

All waters surveyed during 1963 were north of the Sterling Highway in the Kenai National Moose Range adjacent to the Swanson River Road or the Swan Lake Road. The location of these lakes is presented in Table 1.

During September and October, 13 lakes were surveyed of which 8 contained populations of game fish. Rainbow trout were the most common, being found in seven lakes. Residual silver salmon were found in two lakes. The fork

Table 1. The location of lakes surveyed and resurveyed on the Kenai National Moose Range during 1963.

Name of Lake	Location
S - 10	6.3 miles east of Swanson River Rd. on south side of Swan Lake Rd.
S - 11	6.0 miles east of Swanson River Rd. on south side of Swan Lake Rd.
S - 13	1.0 miles north of Swanson River campground, on east side of airstrip.
S - 14	End of Swan Lake Rd. 14.0 miles from Swanson River Rd. on west side.
S - 16	7.0 miles north of Sterling Hwy. on east side of Swanson River Rd.
S - 17	12.6 miles north of Sterling Hwy. on east side of Swanson River Rd.
S - 18	13.0 miles north of Sterling Hwy. on east side of Swanson River Rd.
S - 19	12.6 miles north of Sterling Hwy. on west side of Swanson River Rd.

Table 1. (Con't) The location of lakes surveyed and resurveyed on the Kenai National Moose Range during 1963.

Name of Lake	Location
S - 20	13.0 miles north of Sterling Hwy. on west side of Swanson River Rd.
S - 21	13.0 miles north of Sterling Hwy. on west side of Swanson River Rd.
S - 22	3.0 miles on 3rd road west of Swanson River Rd. on south side.
S - 23	Northwest and adjacent to oil field headquarters.
S - 24	8.9 miles north of Sterling Hwy. on east side of Swanson River Rd.
S - 25	9.5 miles north of Sterling Hwy. on west side of Swanson River Rd.
S - 26	9.5 miles north of Sterling Hwy. on west side of Swanson River Rd., east of Lake S - 25.

lengths of the rainbow trout taken ranged from 142 to 467 mm and those of the silver salmon from 142 to 265 mm. No fish were captured in five lakes although they contained populations of threespine sticklebacks. A description of the lakes surveyed and a summary of the population sampling is shown in Table 2. Comprehensive records of the lakes surveyed are on file at the Seward office of the Alaska Department of Fish and Game.

Two lakes originally surveyed in 1961 were resurveyed. The test netting in these lakes showed the fish populations exhibited little change (Table 3). Residual silver salmon were no longer present in S-10 indicating they had probably completed their life cycle and died.

Grayling Transplants

Grayling which are not indigenous to the Kenai Peninsula were introduced by the Fish and Wildlife Service into Crescent Lake in 1952. Because this plant was very successful and grayling have a high value to the angler it was deemed desirable to establish this species in additional waters. The grayling transplants were accomplished with the assistance of the U. S. Forest Service and all the introductions were made in the Chugach National Forest. The lakes selected all have spawning areas and are devoid of game fish populations.

Approximately 400 grayling were captured by fishing with barbless hooks at the outlet of Crescent Lake from July 26 to 31. Although the fish were not aged they were probably in Age Groups I and II since their lengths correspond to those aged by the author in 1962 from this lake.

Prior to transplanting approximately 80 fish were lost when a live box was turned over. The remaining fish were transplanted with a Cessna 180 after they had been anaesthetized with MS-222.[1] The fish transplants were made from August 4 to 6 and no visible mortality was observed. The lakes where the introductions were made are presented in Table 4.

[1] Tricaine Methanesulfonate, SANDOZ

Table 2. Lakes surveyed in 1963.

Name of lakes	Surface acres	Maximum depth (ft)	Species	Fork length (mm) range	Fork length (mm) mean	Catch/hour	% Composition
S-13	87.0	19.5	Rainbow	183-462	318	0.68	43.0
			Suckers	-	-	0.90	57.0
S-14	38.5	52.0	No fish taken	-	-	-	-
S-16	74.0	43.0	Rainbow	203-406	281	0.34	60.0
			Silver salmon	188-253	225	0.22	40.0
S-17	8.8	36.0	Rainbow	420	420	0.40	100.0
S-18	49.5	-	No fish taken	-	-	-	-
S-19	2.2	-	Rainbow	-	-	0.10	100.0
S-20	2.2	-	No fish taken	-	-	-	-
S-21	5.9	-	No fish taken	-	-	-	-
S-22	11.5	-	No fish taken	-	-	-	-
S-23	56.0	10.0	Rainbow	163-387	311	0.70	100.0
S-24	11.5	-	Silver salmon	142-265	225	0.46	100.0
S-25	108.5	-	Rainbow	154-444	323	0.30	100.0
S-26	32.5	-	Rainbow	204-467	298	0.75	100.0

Table 3. Lakes resurveyed in 1963.

Name of Lake	Species	Fork length (mm) range	Fork length (mm) mean	Catch/hour	% Composition	Date Surveyed
S-10	Rainbow	145-533	288	.24	84.0	8/61
	Silver salmon	150-165	158	.29	10.0	
	Sucker	432	432	.01	6.0	
	Rainbow	243-349	284	.41	87.0	9/63
	Sucker	266-490	408	.06	13.0	
S-11	Rainbow	170-399	307	.11	92.0	8/61
	Sucker	455	455	.01	8.0	
	Rainbow	192-422	301	.27	89.0	9/63
	Sucker	368-525	449	.03	11.0	

Table 4. Lakes Stocked with Grayling During 1963.

Name of Lake	Surface Acres	Number of Fish
Upper Paradise Lake *	218	165
Carter Lake	57	105
Vagt Lake	41	49

Stocked with 242 grayling in 1962 with an estimated mortality of 27 per cent.

Russian River Creel Census

The Russian River red salmon fishery is the second largest single fishery on the Kenai Peninsula. The bulk of the red salmon are taken by "snagging" which involves passing the hook through the water in such a manner that the fish is impaled without necessarily hooking it in the mouth. Anglers are permitted to take red salmon from a 2.5 mile section of the Russian River between its confluence with the Kenai River and Lower Russian Lake. A possession limit of three red salmon over 16 inches in length is in effect and virtually all the spawning areas are closed to salmon fishing. The majority of the fish passing through the fishing area are still in good condition and most have not yet assumed spawning characteristics.

To evaluate the effect of the sport fishery on the Russian River red salmon run the creel census instigated in 1962 was continued during this report period. The census covered the period from June 8 to August 15. A total of 115 fishermen counts was made with 2,315 anglers enumerated. Only completed fishermen were interviewed and all interviews were conducted on the same days as counts.

The total sport fishing effort on red salmon was estimated at 7,882 man-days by projecting the fishermen count data. Anglers fished an average of 3.6 hours per day. The total red salmon harvest was estimated at 5,062 fish. The mean catch per hour was 0.19 and anglers caught an average of 0.64 fish per person. Creel census information collected for the past two years is summarized in Table 5.

The effect of the sport fishery on the total red salmon run in the Russian River can be determined by

Table 5. The red salmon sport harvest and effort on the Russian River for 1962 and 1963.

Year	Harvest	Effort (man-days)	Catch/hour	Period of census
1963	5,062	7,882	0.19	6/8 to 8/15
1962	4,700	6,595	0.22	6/15 to 8/12

Table 6. Russian River red slamon tower counts and percentage taken by sport fishery during 1962 and 1963.

Year	Tower Count	Count period	Percentage taken by sport fishery
1963	56,960	6/18 to 8/23	8.2
1962	48,214	6/18 to 8/31	8.9

examining the escapement estimates. The Commercial Fisheries Division of the Alaska Department of Fish and Game operates a counting tower at the outlet of Lower Russian Lake. Counts are conducted for 15 minutes every hour for a 12-hour period with the 12-hour periods being moved forward by 4 hours every day. The tower counts make it possible to assess the run after it has passed through an intensive commercial fishery in Cook Inlet and the sport fishery on the lower Russian River. The sport fishery accounted for 8.2 per cent of the run after it entered the Russian River (Table 6). This is not considered an excessive harvest.

Literature Cited

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